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La Democrazia nella Religione e nella Scienza—Studi sull'America. By ANGELO MOSSO. Milan. 12mo. Pp. 450.

This book is a striking proof of the remarkable versatility of Professor Mosso, the Italian physiologist. It purports to be a résumé of impressions gathered on his visit to this country in 1899, but the book has a wider bearing and goes quite beyond the scope of a journal of travel. It is a very suggestive survey of some of the most characteristic aspects of American life, and Professor Mosso, who was already known as a writer of unusual brilliancy and cleverness in his own field of physiology, shows here a decided taste for sociological investigations—a feature quite new in the personality of the author of 'La Paura.' He is too modest to consider himself anything but a dilettante in the study of social facts and problems. But the thoroughly scientific training of Mosso's mind, his experimental habits and trend of thought, his keen power of observation, raise the value of his sociological impromptu and give his studies of American life a deeper significance, which cannot fail to command the attention of the 'specialist' himself.

The book includes eleven chapters and, as an appendix, the lecture on 'Thought and Motion' delivered at Worcester, Mass., on July 7, 1899, on the 10th anniversary of the foundation of Clark University. The first chapter is mainly descriptive. It is a series of notes taken while travelling through the country. Mosso, who is a fine writer, shows here his characteristic qualities of vividness and brilliancy. The second is a study of the general features of the population. Here the physiologist has his way and shows himself at every step. The various aspects of the population, anthropological characters, mental and moral traits, the demotic composition, the birth-rate, the criminal and suicidal tendencies, etc., are all systematically taken up and discussed with great clearness and lucidity. Mosso is struck by the unmistakable evidence of nervous strain exhibited by the American population, as a whole. "Perhaps," he says (p. 38), "we have reached in this country the maximum limit of work that can be attained by the neuro-muscu-

lar system." Mosso is a firm believer in the influence of climate upon the race.

"The transformation of the anthropological characters under the influence of climate is," according to Mosso, "a physiological fact that cannot be doubted" (p. 75). Climate and education—meaning, of course, by the latter the action of social environment—are the only sources of dissimilarity in men (p. 106). This is the thought that runs through Chapter III., in which the racial question is taken up and discussed in the light of recent literature. Mosso does not believe in the form of the skull as being the differential element of racial types and an index of the psychical tendencies of each. "This is," as he puts it, "a puerile form of materialism. Our present knowledge of the structure and function of the nervous system does not warrant our attributing such a prominent importance to the form of the skull. The alleged measurements of the anthropologists are entirely worthless as a means of determining the psychical tendencies of a man or a nation" (p. 80). The difference in the form of the skull and in the color of the hair, upon which the entire structure of Ammon and Lapouge's anthropo-sociology is based, is due to the combined action of altitude and temperature—*i. e.*, to the climate. Inhabitants of the mountains have fair hair, while inhabitants of the plains have dark hair. Livi has conclusively shown that all over Italy—including Sicily and Sardinia, where the so-called northern races never reached—the mountains are inhabited by fair-haired men. Since the color of the hair is dependent upon the deposition therein of a varying amount of pigment ultimately derived from the blood, it is not difficult to trace the connection between the climate and the phenomena of oxidation which are at the bottom of the production of pigmentary matter. On the other hand, the dissimilarity in the form of the skull, upon which so much stress has been laid by anthropologists, is merely due to the lack of correlation between the size of the body, which is influenced by altitude and temperature, and the size of the brain, which is left unchanged (pp. 82-83). There are no races in the old metaphysical meaning of ethnic groups governed by congenitally blind impulses. The

differences among men are all traceable to the action of climate and education (p. 96). The Germans and the Scandinavians are, together with the Latins, the representatives of the same Mediterranean race, which, according to the most accepted view (Sergi, Ripley) was the primitive inhabitant of Europe. The so-called northern peoples are merely that part of the original racial stock that went north and became fair-haired, taller and dolicocephalic through the combined action of climate, social environment and natural selection (p. 97). This leads Mosso to refute the legend of Latin decline and to discard the assumption that there exists a congenitally organic difference between the Americans—as representing the northern races—and southern or Latin races.

While we agree with Mosso in his refutation of the fantastic theories of Ammon and Lapouge, we cannot leave unchallenged a statement made at the very beginning of this interesting chapter. Mosso says (p. 79) that “a physiologist cannot possibly admit the existence of differences among white men in regard to the aptitudes of the nervous system. Sociologists,” he says, “are largely responsible for the widespread belief that the causes of historical facts should be traced to different impulses originating from an alleged structural dissimilarity of the nervous system.” Without admitting the skull theory and all the nonsense connected with it, we cannot deny the existence of two mental types, a motor and a sensory, to which correspond, on the volitional side, the impulsive and the obstructed, as masterfully described by James. Now, these mental types cannot but be the outcome of some peculiarity in the ultimate structure of the nervous system. There must be some deep physiological condition to account for the fact that in one set of brains we have a quicker discharge into the muscles than in another set where we have a distinct damming up of the nervous impulse. We are as yet unable to determine what this deep-seated peculiarity is. Probably we have to deal with a chemical problem, and the difference between the two classes of brains in question is in some way related to the metabolism of the nervous element. The fact, however, is undeniable and Mosso, as a physiologist, cannot possibly think

that these two mental types have no physiological substratum. Space forbids an exhaustive discussion of this interesting topic, but we must say that the unequal distribution of these two types of brains within a definite social group is probably the fact which affords the most conclusive explanation of the so-called racial differences. According to the predominance of one or the other of those two mental types, within the group, we have a different mental tone in the community and these various shades of mentality are, after all, the very essence of racial dissimilarity.

In the next chapter—the fourth—Mosso takes up the problem of Democracy and Religion. He is struck by the wonderful growth of Catholicism in this country, a fact which is in harmony with the expansion of Catholicism in Europe, and especially in England, within the last fifty years. Seeking an explanation, Mosso remarks that religion is necessary only for the mentally weak—*i. e.*, for the masses. A nation of philosophers might do without it, just as the intellectual élite does. But no religion can help those who believe better than Catholicism because this latter appeals more vividly to the emotional element, which is the very essence of belief (p. 128). Protestantism is, like the northern climates, gray and sad. There is an element of dullness in it which is in striking contrast with the warmth and life of Catholicism, and since religions have always been, as Mosso vigorously puts it, ‘a form of festival’ (*una forma di festa*) it is the one that appeals more vividly to the senses which has the greater power of propagation (p. 129).

On the other hand, civilization makes men more exquisitely excitable. This ‘effeminating’ influence of civilization is also at work in the expansion of Catholicism (p. 128). The tendency to mysticism which is quite evident in art and literature is a result of the increased intensity of excitability brought about by the refining influence of civilization. And mysticism is fatal both to science and to Protestantism. The clearness of Mosso’s position is somewhat obscured by the fact that he refers to Catholicism as being both the religion of the ignorant masses and the religion of the hypercultivated mystical. Now, Catholicism can be

one or the other of these two things, but cannot be both at the same time. Perhaps the latter interpretation is the nearest to truth. The expansion of Catholicism in England within the last fifty years is evidently related to the undercurrent of mystical tendencies which has been pushing Saxon art towards archaic forms. But, as far as this country is concerned, the growth of Catholicism is dependent upon increase in immigration from Catholic countries, a factor which has been somewhat underestimated by Mosso.

In the following chapters—V., 'The Weakness of Religious Feeling,' VI., 'The Protestant Universities,' VII., 'The Catholic Universities and Canada,' VIII., 'Americanism,' IX., 'Modern Tendencies in Education'—Mosso takes up the different aspects of the problem upon which his interest is mainly centered, *i. e.*, the problem of the relation that democracy bears to religion and education. Particularly worthy of mention are the chapter on 'Americanism,' which gives a very clear account of the controversy waged between the Roman Curia and some prominent representatives of Catholicism in this country, and those in which he describes the peculiarities of American university life. Chapter X.—'The Crowd and the New Aristocracy'—is a study of American political life as influenced by the formation of a powerful aristocracy of millionaires. The tenth chapter, on 'Primitive America,' is a hymn to nature. It is a vigorous description of some of the most picturesque aspects of this continent, in its wildest regions, where civilization has not yet spoiled the divine charm of an enchanting nature. Here Mosso shows his decided literary tastes, and some of his pages are really beautiful.

On the whole, Mosso's book will prove both interesting and instructive to his own compatriots as throwing a fuller light upon this wonderfully growing country, which is called to play such a tremendous rôle in the drama of the century. While to the American reader who can afford to take hold of this charming book, it will undoubtedly be a source of deep gratification to see how the noble efforts of this valiant race towards a high ideal of civilization are appreciated by a scholar and a scientist of Mosso's standing and fame.

GUSTAVO TOSTI.

Atoms and Energies. By D. A. MURRAY, with an introduction by PROFESSOR FREDERICK STARR, of the University of Chicago. New York, A. S. Barnes & Co. 1901.

"It is a long time since I have read a work in physical science which has given me so much pleasure as 'Atoms and Energies.' The subject is interesting, the point of view novel, the argument clear, the book itself satisfactory."—Professor Starr.

In writing this short review our chief aim is to make reply to Professor Starr, for we too have been trying to interest him and others not specially devoted to the subject in physical science.

From the contents of the little book before us it appears that the author knows nothing of the works of the great builders of that marvelous Engine of Interpretation, the atomic theory. Among these works may be mentioned the following, each of which is monumental in character. The list will serve to indicate to the reader the present scope of the atomic theory. Maxwell's and Boltzmann's contributions to the 'Kinetic Theory of Gases,' Sohncke's 'Theory of Crystal Structure,' Poisson's contributions to the 'Molecular Theory of Elasticity,' van't Hoff's 'Stereo-chemistry,' Planck's 'Electro-atomic Theory of Radiation,' and J. J. Thomson's 'Corpuscular Theory of the Electric Discharge,' to say nothing of such works as Johnstone Stoney's on 'The Electron Theory,' and Lord Kelvin's on 'The Vortex-atom Theory,' both of which are devoted to 'many an assumption that is not exactly necessary,' to use Helmholtz's words, which are quoted in the next paragraph.

What are atoms? we are inclined to ask when we take up Mr. Murray's book, although under ordinary circumstances the question does not much concern us. In so far as we have anything to do with them we believe they are mere logical constructions. Bacon long ago listed in his quaint way the things which seemed to him needful for the Advancement of Learning. Among other things he mentioned 'A New Engine or a help to the mind as a tool is a help to the hand,' and the greatest achievement of the nineteenth century in physical science is the realization of Bacon's idea, in a great body of useful theory. As Helmholtz